

REMARKS

Request for One-Month Extension of Time under 37 C.F.R. 1.136(a)

Applicants hereby request a one-month extension of time under 37 C.F.R. §1.136(a), thus extending the time for responding to the May 12, 2004 Office Action to September 13, 2004.

The Office is authorized to charge the \$110.00 fee for such request for time extension under 37 C.F.R. §1.17(a)(1) to the credit card specified in the Credit Card Payment Form enclosed herewith.

Response to Rejections of Previously Allowed Claims 30-32, 35-45, and 71-74

In the May 12, 2004 Office Action, the Examiner rejected the previously allowed claims 30-32, 35-45, and 71-74, citing a new reference DiMeo, Jr. et al. U.S. Patent No. 6,265,222 (hereinafter "DiMeo").

Applicants respectfully traverse the claim rejections, for the following reasons.

Claim 30, from which the remaining pending claims 31-32, 35-45, and 71-74 depend, expressly requires:

“A hydrogen gas detector, comprising:

a light source;

a thermal energy source that is separate from the light source;

an optical filter having an optical transmissivity responsive to the presence and concentration of hydrogen gas in an ambient environment to which the optical filter is exposed, said optical filter being disposed in proximity to the light source such that said optical filter is illuminated with light from the light source, and being operatively coupled to the thermal source such that the optical filter is heated by the thermal source to an elevated temperature;

a light detector generating an output signal, the state of said output signal being proportional to the intensity of light impinging on the light detector, **said light detector being disposed in light-sensing relationship to the optical filter, whereby light from the light source passing through the optical filter impinges on the light detector** and generates said output signal as a indication of the presence and/or concentration of hydrogen gas in the ambient environment.”

It is clear that Applicants' claimed invention as recited by claims 30-32, 35-45, and 71-74 requires not only a light source, an optical filter, and a light detector, but also that the light detector is "disposed in light-sensing relationship to the optical filter" so that "light from the light source passing through the optical filter impinges on the light detector."

In the May 12, 2004 Office Action, the Examiner asserted that the new DiMeo reference discloses at column 3, lines 1-4 "a light detector disposed in light sensing relationship to the optical filter and detecting light passed through the filter" (see the Office Action, page 3, lines 8-11).

However, despite the Examiner's assertion, the DiMeo reference only discloses "a detector for sensing a detectable change of physical property of the film in exposure to hydrogen and generating a correlative output indicative of hydrogen presence" (see DiMeo, column 3, lines 1-4).

Nothing in DiMeo teaches or suggests that such detector is a light detector, much less that a light detector is disposed in light-sensing relationship to the optical filter (26) so that light from the light source can pass through the optical filter and impinge on the light detector, as required by claims 30-32, 35-45, and 71-74 of the present application.

On the contrary, the DiMeo reference discloses that the thin film hydrogen sensor layer 26 (i.e., the potential optical filter) is formed on top of: (1) silicon dioxide layer 24, (2) aluminum contact pads 22, (3) silicon dioxide insulating layer 20, (4) conductive heat distribution plate 18, (5) silicon dioxide insulating layer 16, (6) polycrystalline silicon heating element 14, (7) silicon dioxide microbridge 12, and (8) silicon substrate 8 (see DiMeo reference, column 14, lines 27-67; column 15, lines 1-15; and Figures 2 and 3). None of these underlying layers functions as a light detector or as a light source.

Because the hydrogen sensor layer 26 (i.e., the potential optical filter) disclosed by DiMeo is formed over the above-listed layers (1)-(8), light that passes through the hydrogen sensor layer 26 (i.e., the potential optical filter), instead of impinging on a light detector, will be immediately absorbed by one or more of such underlying layers (1)-(8).

Therefore, DiMeo expressly teaches away from a light detector disposed in light-sensing relationship to the optical filter (26) so that light from the light source can pass through the optical filter and impinge on the light detector, as required by claims 30-32, 35-45, and 71-74 of the present application.

The Examiner's attention is hereby directed to the applicable law stated in *In re Geisler*, 116 F.D. 1465, 1469, 43 USPQ2d 1362, 1565 (Fed. Cir. 1997) and *In re Malagry*, 499 F.2d 1297, 1303, 182 USPQ 549, 533 (CCPA 1974), noting that a *prima facie* case of obviousness has been rebutted if the art "in any material respect taught away" from the claimed invention. The meaning of "teaching away" is clear and well-established. A reference "may be said to teach away when a person of ordinary skill, upon reading the reference, ... would be led in a direction divergent from the path that was taken by the applicant." *Tec Air, Inc. v. Denso Mfg. Mich. Inc.*, 192 F.3d 1353, 1360, 52 USPQ 2d 1294, 1298 (Fed. Cir. 1999).

The Examiner's assertion in the May 12, 2004 Office Action ignored such express teaching away by the DiMeo reference and constitutes mischaracterization of the DiMeo reference, and such assertion therefore does not support the rejection of claims 30-32, 35-45, and 71-74.

Based on the foregoing, Applicants' claimed invention patentably distinguishes over the DiMeo reference by requiring a light detector that is disposed in light-sensing relationship to the optical filter so that light from the light source can pass through the optical filter and impinge on such light detector.

Further, it would be inappropriate to ignore the express teaching away by DiMeo and to arbitrarily combine the DiMeo reference with any secondary references that teaches such a light detector for the purpose of yielding Applicants' claimed invention.

Therefore, the Examiner's hypothetical combination of DiMeo with the secondary reference Ito et al. U.S. Patent No. 4,661,320 (hereinafter "Ito") is improper and cannot be used to support the rejection of claims 30-32, 35-45, and 71-74 of the present application.

Applicants hereby request the Examiner to reconsider, and upon reconsideration to withdraw, the rejections of previously allowed claims 30-32, 35-45, and 71-74.

CONCLUSION

In view of all the foregoing, claims 30-32, 35-45, and 71-74 are in form and condition for allowance. Issue of a Notice of Allowance therefore is respectfully requested.

The United States Patent and Trademark Office is hereby authorized to charge any additional fee that is necessary for entry of this Amendment to Deposit Account No. 08-3284 of Intellectual Property/Technology Law.

If any issues remain outstanding, the Examiner is requested to contact the undersigned at (919) 419-9350 to discuss their resolution, and expedite closure of prosecution on the merits in favor of allowance of claims 30-32, 35-45, and 71-74.

Respectfully submitted,



Yongzhi Yang
Registration No. (see attached)



Steven J. Hultquist
Registration No. 28021
Attorneys for Applicants

Intellectual Property/Technology Law
P.O. Box 14329
Research Triangle Park, NC 27709
(919) 419-9354
Attorney File: 4249-401